Method of Forming a PIP Capacitor

ABSTRACT OF THE DISCLOSURE

A method of forming a polysilicon-insulator-polysilicon (PIP) capacitor in a mixed mode semiconductor device. A floating gate of a split gate transistor and a bottom electrode of a PIP capacitor are formed from a first polysilicon layer using a single lithography mask. Poly-oxide regions are formed over the floating gate and the bottom electrode, and an oxide layer is formed over the poly-oxide regions and other exposed material layers. A nitride layer is deposited over the oxide layer. The nitride layer is patterned to expose at least a portion of the poly-oxide region over the bottom electrode. The exposed oxide layer and poly-oxide region are removed from over the bottom electrode. A second polysilicon layer is deposited over the structure, and a control gate of the split gate transistor and a top electrode of the PIP capacitor are formed from the second polysilicon layer using a single lithography mask.